

Kirkpatrick Dam/Rodman Reservoir

Dam Safety Fact Sheet



Location: 14 miles southwest of Palatka

Background and Public Purpose:

The Rodman/Kirkpatrick Dam never served its intended purpose as part of the halted Cross Florida Barge Canal. Unlike most public works dams, this one was not built to provide water supply, hydroelectric power, irrigation, or flood protection. It was constructed as part of the Cross Florida Barge Canal which was halted by President Nixon in 1971.

Date Constructed: 1968

Life Expectancy: 50 years (2018)

Type of Dam: Earthen Embankment

Dam Length: 7,200 feet

Constructor: U.S. Army Corps of Engineers

Owner/Operator: Florida Department of Environmental Protection (FDEP)/Office of Greenways and Trails through an agreement with the United States Forest Service. The United States Forest Service owns the portion of the dam extending southwesterly from the historic river channel.

Rodman/Kirkpatrick Dam Safety Concerns

Approximately 539 Properties Shown in Potential Harm's Way and \$57 Million in Potential Property Damage

The Florida Department of Environmental Protection's Marjorie Harris Carr Cross Florida Greenway State Recreation and Conservation Area Unit Management Plan 2018-2028 includes the Kirkpatrick Dam and Rodman Reservoir. It highlights the number of properties that could be in harm's way with an uncontrolled discharge from the Kirkpatrick Dam.

"Approximately 400+ properties were shown to be in potential harm's way if the Kirkpatrick Dam failed and the impounded water in the reservoir flowed downstream in an uncontrolled discharge. There has never been a formal water management plan developed for this reservoir. Department of Recreation and Parks/Cross Florida Greenway Management should have and has recurrently asked for the development and implementation of such a plan for the protection of personal property and life downstream from the Kirkpatrick Dam along the St. Johns River." – Marjorie Harris Carr Cross Florida Greenway State Recreation and Conservation Area Unit Management Plan 2018-2028, approved April 2018 by Acquisition and Restoration Council

After the legislative session ended in spring of 2022, FDEP released a package of 10 reports that were 60 percent redacted. Those were reviewed by an independent dam engineer and the Ocklawaha River Coalition's Science Team. See following report.

FDEP completed an updated 2018 Emergency Action Plan (EAP) to address the current situation and how to deal with such an emergency. To our knowledge, this was not released to the residents in harm's way. In 2006, the FDEP created an earlier Emergency Action Plan (EAP) with inundation maps depicting areas of greatest concern for emergency management authorities and a list of properties located in the areas of likely inundation if the dam were to fail under fair weather conditions.

The two areas of potential harm shown on the inundation maps in the EAP have been further subdivided and developed since 2006 and now contain 539 private and public parcels with a conservative projected property loss value from dam failure of \$57 million. This does not address the potential for loss of life. Finally, it is worth noting that the FDEP staff stated that a formal water management plan and downstream protection plan should have been developed.

FEMA Findings

It is also worth noting that based on the following FEMA fact sheet, between 1975-2011, 70.9 percent of the dam failures in the U.S. result from "flooding or overtopping." Since these situations are commonly triggered by major storm events, implementing a drawdown during Florida's hurricane season would be prudent.

https://www.fema.gov/sites/default/files/2020-08/fema_dam-safety_inundation-mapping-flood-risks.pdf

Other Potential Impacts to People, Infrastructure, Water Quality and Natural Systems

- Lower Ocklawaha River Habitat and Water Quality Impacts - Downstream water quality would suffer due to extensive turbidity from unmanaged release of sediments.
- St. Johns River Estuary - Valuable commercial and sports fishing resources would also be adversely impacted from downstream turbidity.
- Rodman Dam Causeway and Recreation Area Infrastructure - Dam failure could sever the causeway and severely damage the recreational infrastructure.
- Bridge at State Road 19 - This heavily trafficked roadway from the Ocala area to Palatka could suffer structural damage from an uncontrolled release.

Recent Historic Examples of Earthen Dam Failures

Dam safety in the US state of Michigan was thrown into the spotlight after the failure of Edenville and Sanford Dams during May 2020.

<https://www.waterpowermagazine.com/features/featuremichigan-dam-failures-prompt-re-assessment-of-safety-8552738/#:~:text=Dam%20safety%20in%20the%20US,US%20state%20of%20Michigan%2C%20failed.>

Recommended Solutions

- Immediate short-term solution - Drawdown to 12 feet NGVD or approximately normal drawdown levels. This would significantly reduce the danger of a dam failure, by reducing the water pressure on the dam and minimizing the potential for overtopping the dam during a major storm event or hurricane. It would not address the undermining of the structure, but would substantially reduce predicted flooding impacts to downstream properties.
- Long-term solution - Breach the dam and partially restore the river. Restoring the free-flowing river will eliminate the risks of a dam failure.